Consistency, specificity, reification of pedagogical and mathematical discourses in student teacher narratives on the challenges of their school placement experience

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Mathematics student teachers often express commendable pedagogical and didactical aspirations the application of which may prove challenging when they enter the profession. The potential mismatch between aspirations and institutional reality is the focus of the study we present in this poster. Our interest is to investigate how the mathematical and pedagogical content addressed in the university-based component of a mathematics teacher education programme interacts with student teachers' experiences in school placements and also with their reflection on these experiences. For example, how do student teachers transform mathematical knowledge into teaching practice? How do they transform commendable pedagogical intention into teaching strategies? What mathematical discourses characterise their reflections on the mathematical content of their teaching? And what pedagogical discourses characterise their reflections on their teaching experiences?

In our on-going research programme on mathematics teacher knowledge and beliefs which this study draws on we invite pre- and in- service teachers to reflect on fictional but realistic and research grounded classroom scenarios that include a mathematical problem and a reaction by one or more students (and a teacher) to this problem (e.g. Nardi, Biza & Zachariades, 2012). Teachers' responses to these tasks and interviews reveal a complex set of considerations (e.g. personal, professional, institutional) that teachers take into account when they determine their actions (ibid.). A recent elaboration of this work suggests a typology of four interrelated characteristics of teachers' responses (Biza, Nardi & Zachariades, submitted):

- *consistency*: how *consistent* student teachers' stated beliefs and their intended (or reflected upon) practice are;
- *specificity*: how *contextualized and specific* student teachers' reflection is to the classroom situations under consideration;
- *reification of pedagogical discourse*: how *reified* the *pedagogical discourses* of student teachers are in order to describe the pedagogical and didactical issues of the classroom situations under consideration; and,
- *reification of mathematical discourse*: how *reified* the *mathematical discourses* of student teachers are in order to identify the underpinning mathematical content of the classroom situations under consideration and the transformation of this mathematical content into their intended (or reflected upon) pedagogical practice.

We use these characteristics in the analysis of how student teachers experience and reflect on their school placement. To this aim we conducted this study in the context of the mathematics Initial Teacher Education (ITE) programme in our institution that has an expectation of a minimum 24 weeks in two schools with a further 12 weeks study at university. The university based component aims to provide students with the academic, professional and personal skills and competencies needed for teaching. In the phase of the study reported in this poster, we invited mathematics student teachers to compose a scenario (approximately one A4 page) drawing on their classroom experience soon after their first block of school placement. We specified that this scenario could be fictional but based on a real situation they had experienced. We suggested that they include: (a) a brief description of the context, (b) a story, possibly in a dialogic format, telling the incident their scenario is about, and (c) their reflection on this scenario (e.g. the reasons they selected it, their concerns, their questions, etc.). The participants were familiar with this type of situation specific scenarios as a trigger for mathematics teacher reflection and professional development through participation in other phases of our research programme earlier in the academic year. However, this was the first time they were asked to produce their own scenarios.

We collected twelve scenarios and grouped them thematically into four groups that covered topics such as student disengagement with mathematics, relational/instrumental understanding in the secondary mathematics classroom, students' (mis)conceptions and the secondary mathematics classroom management. Then the 17 participants discussed the scenarios in small groups first and then in a plenary discussion. All discussions were audio-recorded and transcribed.

We are now analysing the scenarios and subsequent discussions with aforementioned typology. In the poster presentation we will show outcomes from this analysis. We will focus specifically on the mathematical aspects of the scenarios and the ensuing discussions – and the challenges student teachers face when they deal with this content in the secondary mathematics classroom. We will conclude with discussing implications for university-based mathematics teacher education programmes.

REFERENCES

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